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# Nursing Input During Interprofessional Rounds in the Intensive Care Unit

Kathrine A. Winnie

*California State University, Northern California Consortium Doctor of Nursing Practice*

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Running head: NURSING INPUT DURING INTERPROFESSIONAL ROUNDS

Northern California CSU DNP Consortium

California State University, Fresno

Nursing Input During Interprofessional Rounds in the Intensive Care Unit

A DOCTORAL PROJECT

Submitted in Partial Fulfillment of the Requirements

For the degree of

DOCTOR OF NURSING PRACTICE

By

Kathrine A. Winnie

May 2016

## APPROVED

For the California State University, Northern Consortium  
Doctor of Nursing Practice:

We, the undersigned, certify that the project of the following student meets the required standards of scholarship, format, and style of the university and the student's graduate degree program for the awarding of the master's degree.

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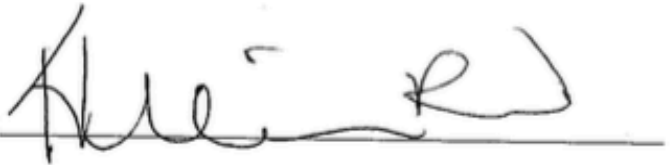
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### Abstract

Interprofessional rounding has become a standard in intensive care units. Healthcare organizations such as The Joint Commission (2013) and the Institute of Medicine (2010) promote interprofessional teamwork with the goal of improving patient safety and outcomes. The 2010 IOM report, *The Future of Nursing – Leading Change, Advancing Health* discusses the need for all nurses to work as part of an interprofessional team to improve healthcare. Interprofessional rounding offers a venue for nurses to demonstrate their role as an equal member of the healthcare team. At the hospital of focus, there has been no previous formal attempt to measure the actual degree of nursing input during interprofessional rounds.

This study assessed the frequency and type of nursing input during individual interprofessional rounds. Further, the study utilized demographic information collected to determine if nursing characteristics affected the frequency of nurse input during rounds. A total of 63 individual Intensive Care Unit (ICU) rounds were included in this observational study with a matched questionnaire. The mean frequency of nursing input that focused on nursing-specific topics during rounds was 1.73 times. Nurses provided input on any topic a mean frequency of 2.56 times per round. There were no significant demographic characteristics that led to more frequent input during rounds. Seventy-one percent of nurses believed that their current rounding process was effective. The percentage of times nurses made recommendations leading to immediate orders or a change in the plan of care was 25.4.

### **Nursing Input During Interprofessional Rounds in the Intensive Care Unit**

Healthcare environments have become increasingly complex over time, requiring multiple healthcare professionals to provide specialty-specific care for each hospitalized patient. Despite the increase in patient complexity, healthcare professionals work in silos, meaning they work individually or only with members of their own profession (Institute of Medicine, 2010). High levels of collaboration in healthcare have been shown to decrease errors, decrease length of stay, and reduce healthcare costs (The Joint Commission, 2013). Interprofessional rounding is an effective strategy for promoting collaboration, communication, and shared decision-making among members of the healthcare team. Nurses and medical residents believe that interprofessional rounds are an ideal venue for teamwork and collaboration (Fewster-Thuente, 2013). Scheduled interprofessional rounds provide opportunities for communication in intensive care units (ICUs), however true interprofessional collaboration may be lacking. Hierarchical structures, medical dominance, and variances between professions have been identified as barriers to teamwork and collaboration (Alexanian, Kitto, Rac, & Reeves, 2015). The nurse, although heavily involved in every aspect of each patient's care, may be affected by such barriers, and offer little input during rounds.

### **Background and Significance**

#### **Background**

The purpose of traditional medical rounding is to evaluate each patient's current medical condition, assess treatments, and discuss patient progress or recovery (rounds, Segan Medical Dictionary, 2012). A secondary purpose of



rounding is teaching, where residents, physicians, and other healthcare providers deliver and receive education based on the care being provided to each patient (rounds, Mosby Medical Dictionary, 2009). Rounding on patients is a well-established practice that can be traced back to the 17<sup>th</sup> century (Gonzalo, Chuang, Huang, & Smith, 2010). Physicians assessed each patient while providing real-time education for physicians-in-training (Stickrath et al., 2013). As laboratory testing and patient imaging became readily available, healthcare providers spent less time assessing and interacting with the patient at the bedside. The result was an informational rounding process that occurred in hallways or conference rooms (Society of Critical Care Medicine & Sutter Health, 2015).

Literature from the 1990's describes the inclusion of nurses in rounds as a resource in case the physician had questions (Gurses & Xiao, 2006). Other healthcare professionals were also invited to rounds to act as consultants. This physician-centric and hierarchical structure of rounding is known as multidisciplinary rounding (Society of Critical Care Medicine & Sutter Health, 2015). Over time, physicians have come to understand that safety and quality are improved when health professionals collaborate during the rounding process (McDonald, 2012). With the goals of increasing communication to prevent errors and reducing length of stay, the expectation is that nurses will actively provide input during rounds. Interprofessional rounding is the terminology used when all healthcare professionals provide input equally and offers recommendations within their scope of practice during the rounding process. Interprofessional rounding promotes

safety and collaboration while decreasing hierarchical structures (Society of Critical Care Medicine & Sutter Health, 2015).

### **Significance**

In 2010, the Institute of Medicine (IOM) published a report on the future of nursing, which called for a transformation in the nursing profession. The report called for *all* levels of nursing to collaborate with physicians and other healthcare professionals, and hierarchical silos to be broken down in order to provide the best quality care (Institute of Medicine, 2010). The report also discussed the history of females in passive roles as opposed to being decision-makers. The authors stated the importance of having frontline nurses who speak out to share their knowledge of the patient, family, and community with the rest of the healthcare team. Successful collaboration and equal interprofessional partnerships require leadership skills that have not consistently been provided in pre-licensure nursing programs (Institute of Medicine, 2010). According to the IOM, nurses need to be able to hold others accountable, collaborate, and advocate for quality and safety. These goals, which are certainly attainable, require a major practice change for nurses.

In addition to the groundbreaking IOM report, the Affordable Care Act (U.S. Department of Health and Human Services, 2015) contributed to the changing environment in healthcare. Various measures are now used to determine hospital quality, and many of these metrics are considered nursing-sensitive quality indicators (NSQI). The number of central line-associated bloodstream infections and catheter-associated urinary tract infections are two examples of NSQIs, and as

such, nursing departments not only need to have the skill to care for the devices, but must also be able to appropriately advocate for their removal. It is vital for nurses to be skilled in advocacy and be viewed as equal healthcare professionals. Nurses in the facility of focus report that they do not feel equipped to have such conversations even though they have the knowledge (S. Enriquez, personal communication, April 1, 2015). This highlights the need for more study and focused attention.

Interprofessional rounds support quality improvement (Ten Have et al., 2013), and leaders must ensure that nurses have the skills and support to initiate quality conversations during the rounding process.

The academic medical center of study appreciates that interprofessional rounding is an opportunity for interprofessional collaboration and communication, and expects that all professions will be present for rounding at least weekly (Keck Hospital of USC Performance Improvement Department, 2015). Although the facility has conducted some form of rounding for years, according to clinical nurses, it remains a physician-centric process. Within the last year, nurse rounding worksheets and checklists were developed and trialed, but abandoned when the rounding team did not review the content. Audits on the frequency of use of the rounding tool back up the nurses' comments that they are rarely utilized (Keck Hospital of USC Performance Improvement Department, 2015). Patient care obligations frequently interfered with nursing round attendance, leaving the rounding responsibility to the charge nurse who was not directly providing patient care. (Keck Hospital Performance Improvement Department, 2015). Even when nurses provided input during rounds, it was not a goal-directed, methodical process

(Keck Hospital of USC Performance Improvement Department, 2015). Some nurses report frustration with their colleagues, maintaining that many do not speak up to address quality issues or other plan of care concerns due to their discomfort with the rounding process (K. Sanchez, personal communication, March 11, 2015).

Although a recent change project has been successful in ensuring that nurses are physically present in rounds, a post-implementation survey showed that nurses did not understand the purpose of interprofessional rounding, goals were not being developed, nurses were not fully participating by verbally offering input, rounding tools were not being utilized, and there was inconsistency and dissatisfaction with the rounding process (Keck Hospital of USC Performance Improvement Department, 2015).

### **Purpose**

The purpose of this exploratory study was to formally assess the level of nursing input during interprofessional rounds. A secondary purpose was to determine if barriers to nursing input during rounding are related to or associated with nurses' age, gender, ethnicity, country of birth, specialty certification, or education level.

### **Problem Statement**

There is limited research on interprofessional rounding, particularly with regard to the nurses' role. Assessing the frequency with which nurses provide input, discuss nursing quality issues, and make recommendations during rounds will assist this researcher in recognizing deficits and educational needs. Evaluation of the rounding process and nurse participation/input can inform the process and

promote high quality interprofessional rounds, and ultimately, improve patient outcomes. Identifying nurse characteristics that may affect the level of nursing input during rounds will be helpful in determining barriers that can be addressed during the education process.

### **Research Questions**

Research questions to be answered were as follows:

- How frequently do nurses provide input during interprofessional rounds on a per-patient basis?
- How frequently does nursing input address nursing-focused care and quality indicators during interprofessional rounds on a per-patient basis?
- How frequently does nursing input during interprofessional rounding lead to immediate orders or changes to the plan of care for each patient?
- What nursing demographics are associated with nursing input during rounds?
- Do nurses believe the current interprofessional rounding process is effective?

### **Conceptual Framework**

Physician dominance in healthcare can be traced to regulatory and historical practices. The hierarchical structures of Western medicine often place nurses in a subservient role (MacMillan, 2012; Reeves et al., 2008). The degree to which these patterns affect healthcare organizations may vary, yet it is unlikely that even if the most progressive facilities, these patterns are completely absent. There have been efforts to improve interprofessional collaboration (Putnam, Ikeler, Raup, & Cantu,

2014), yet addressing the historical causes is not frequently addressed in the literature. If nurses are to act as true professionals and participate as equal members of the healthcare team, the social and political structures that affect nursing must be identified, acknowledged, and addressed. Interprofessional rounds provide an opportunity to assess nurses' ability to interact as a professional member of the healthcare team. Freire's Theory of Human Liberation is beneficial in understanding historical barriers that affect nurses' ability to work as an equal interprofessional team member during rounds.

### **Paulo Freire's Theory of Human Liberation**

Paulo Freire (1921-1997) was a Brazilian educator who was well known for his interest in oppressed populations. Freire focused on dialogue, praxis, and conscientization as important aspects of education for disadvantaged people (Freire Institute, 2014).

Freire's Theory of Human Liberation is based on critical social theory, and outlines two groups-those who hold a privileged position, and those who are disadvantaged. The privileged group is powerful, and is therefore able to control others. One especially important point that Freire made when describing this group is that they are the decision-makers who determine how things are going to occur. (Chinn, 2011).

The dichotomous groups are not intentionally created and members are frequently unaware of their own role in the social and political system of which they are a part. This lack of awareness is problematic for the disadvantaged group. Instead of developing an understanding of their history, forming a cohesive group,

and working toward removing barriers, individuals in the disadvantaged group strive to become part of the privileged group. If they are able to become a part of the privileged group, they leave their role in the disadvantaged group behind to become a part of the powerful class. Those who remain disadvantaged learn not to question the leaders (Chinn, 2011).

Freire's Theory of Liberation requires that the disadvantaged become conscious of their situation and the social and political concepts that have led to dominance by the other group. The disadvantaged group should use dialogue and reflection as tools to develop self and other awareness. They must implement change by acting upon their circumstances, and should work together rather than attempting to individually resolve the issue (Chinn, 2011). Paulo Freire's work, along with critical social theory, influenced emancipatory knowing, a perspective that identifies the significant impact that social issues have on nursing practice (Chinn, 2011).

### **Fundamental Assumptions of Emancipatory Knowing**

Emancipatory knowing is used in nursing to describe the awareness of the sociopolitical implications that surround nursing practice, the desire to be free of such circumstances, and the actions that are taken once nurses have an understanding of the sociopolitical factors that affect nursing (Chinn, 2011). Chinn describes this process as a circle consisting of knowing and doing that brings theory and practice together. Fundamental assumptions of emancipatory knowing state that: 1) knowledge is based on cultural perceptions and contexts. It is not ahistorical, 2) research is political, 3) knowledge is developed based on power

relations, 4) language is constructed to carry power meanings, and 5) social structures can be changed and changes should be implemented so that there is justice for all (Chinn, 2011).

When evaluating emancipatory research, Joyce Fontana identified seven key features that can be considered in practice; Critique, context, politics, emancipatory interest, democratic structure, dialectic analysis, and reflexivity (Chinn, 2011). The sociopolitical perspective of each situation should be considered and critiqued in relation to current conditions and circumstances, with the affected population being welcome to and expected to discuss their own perceptions of issues. Participants in emancipatory practice are equal, and are therefore empowered by the emancipatory process. Comparing ideal practice to reality allows individuals to understand and actively participate in meaningful change. Personal and group reflection provides insight needed to create change (Chinn, 2011).

### **The Theory of Human Liberation and Emancipatory Knowing in Rounding**

Freire's Theory of Human Liberation describes the advantaged and disadvantaged. Much of the research and literature using Freire's theory was published outside of the five-year window in which research is considered current. Despite this, there is significant value in applying this theory to nursing. Examining the subordinate role of the nurse, along with the dominant role of the physician or administrative team is optimal for understanding and changing hierarchal behavior, and other barriers to professionalism in nursing. Additionally, the emancipatory knowing perspective augments the need for awareness in order for change to occur. Nurses must be aware of the political and social circumstances that can lead to



patient harm, and without clearly identifying and analyzing the problem, nurses may accept the status quo, never understanding the need to transform the healthcare environment.

### **Operational Definition of Terms**

**Collaborate (collaboration)** – “The action of working jointly with others or together especially in an intellectual endeavor” (collaborate. Merriam-Webster online dictionary, 2011).

**Communication** – “The process of using words, sounds, signs, or behaviors to express or exchange information or to express your ideas, thoughts, feelings, etc., to someone else” (communication. Merriam-Webster, 2011).

**Input** – Advice or opinion that helps someone make a decision (input. Merriam-Webster dictionary, 2011). Within this paper, input is a type of participation. Providing input refers to the verbal process of sharing information that may assist in decision-making.

**Interprofessional Rounds** – A collaborative process where individual patient’s condition, goals, care, and/or treatment are discussed by interprofessional team members. Participants from each profession review data, provide recommendations, and jointly develop goals. The physician is an equal team member rather than the team leader. This model of rounding is known for incorporating shared decision-making by all team members, and the team includes the patient and family (Society of Critical Care Medicine & Sutter Health, 2015).

**Multidisciplinary Rounds** – When patient condition and care is discussed, treatments and goals are planned, and specific patient information is used to teach

other members of the medical team. Normally the physician is the facilitator of this process and various interprofessional team members (e. g. physical therapist, pharmacist, nurse) listen to the presentation, and act as consultants. Because the round is purely informational, the team does not need to examine or speak to the patient. It is important to note that the definition of interprofessional and multidisciplinary are sometimes used interchangeably, but actually have different meanings. Multidisciplinary describes different disciplines working independently toward a common purpose, (Society of Critical Care Medicine & Sutter Health, 2015).

**Participation** – For the purpose of this paper, participation is verbal input.

**Traditional Rounds** – A process where physicians go to individual patient rooms to assess, discuss, and provide treatment for patients. There is often a teaching component included (Society of Critical Care Medicine & Sutter Health, 2015).

### **Literature Review**

This literature review was conducted using relevant databases to search the following terms and phrases: interprofessional rounds, multidisciplinary rounds, medical rounds, nurses and rounding, interprofessional teamwork, rounding, healthcare rounds, patient rounds, interprofessional collaboration, and hierarchies in healthcare. Literature on healthcare rounds is scant and varied. Initial rounding research has been based on either implementing any type of interprofessional rounding, developing a structure for interprofessional rounds, using tools to provide structure, or incorporating the patient and family into the rounding process. Within the literature, both interprofessional and multidisciplinary rounds are used with more recent literature focusing on interprofessional rounding. The term interprofessional is used throughout this paper, unless discussing research that uses other terminology.

### **Assessment of Characteristics of Interprofessional Rounds**

An evaluation of current rounding practices in four teaching hospitals attempted to identify rounding characteristics. Stickrath et al. (2013) performed observations of 90 rounds and found that rounds normally take place outside of the patients' rooms. The cross-sectional descriptive study noted that the median rounding time was five minutes, and common topics were the plan of care for each patient, a review of imaging and laboratory tests, and responding to patient questions. The group noted a lack of interprofessional collaboration. Nursing content, and nursing quality indicators were not often discussed. The authors of this study identified that they were observing "attending rounds", and did express

that the hospital performed an interprofessional discharge round that was not assessed. Limitations of the study include the small number of participants and a limited number of sites (Strickrath et al., 2013).

### **Interprofessional Relations in Healthcare**

Hierarchical structures in the healthcare environment are often noted as a barrier to effective communication (Leape et al., 2009). One team of researchers in Australia (Nugas, Greenfield, Travaglia, Westbrook, & Braiteworth, 2010) studied various clinical settings (aged care and rehabilitation, community health, cancer services, and a mental health hospital) to discover how clinicians exercised power. This multi-method qualitative and quantitative research project included observation of formal events such as care conferences, observation of everyday healthcare professional interactions, analysis of spaces used for interprofessional communication, and staff interviews. A total of 63 interviews and focus groups provided qualitative results based on themes noted in literature and topics discussed included leadership, staff well being, and communication (Nugas et al., 2010). Physician dominance and power were noted to be of concern to non-physician interprofessional collaborators, and physicians noted their role as the ultimate decision-maker. Qualitative descriptions of the environments were of interest, however, charts and graphs depicting relative distribution of time talking in interprofessional conferences were particularly meaningful. According to Nugas et al., (2010) physicians spoke more than 67% of the time in the acute care conference, and over 33% of the time in subacute care conferences. One strength of this study was the variety of methods used to study clinician power structures,

however the variety of settings made for mixed results. This study showed that physician presence and dominance varied among settings; with physicians exercising more dominant patterns in the acute care settings.

Alexanian et al (2015) used observations and interviews in an ethnographic study to understand interprofessional interactions (including rounds) and how teams function in two North American hospitals. . The 197 observations at site one and 167 observations at site two were combined with 21 interviews at site one and 15 interviews at site two. Researchers found that interprofessional collaboration was rare, and although the study participants often described their group as a team, researchers found the groups lacked the shared identity and shared responsibility expected of a team. Medical dominance was apparent in interprofessional interactions (Alexanian et al., 2015). Other studies attempted to intentionally incorporate interprofessional strategies into their rounding processes.

### **Rounding Tools and Rounding Structures**

Past studies have identified attributes and key behaviors that are essential when performing interprofessional rounds (Pronovost, Berenholtz, Dorman, 2003; Jain, Thompson, & Chaudry, 2008; Miller, Scheinkestel, & Joseph, 2009), however, Ten Have et al. (2013) noted that there was not a formal assessment method for determining the quality of interdisciplinary rounds. The research question identified within this article was whether the team could develop an assessment instrument that would measure the quality of interdisciplinary rounds in intensive care units (ICUs). The methodological study assessed rounds in a total of three ICUs in two different hospitals in the Netherlands; one an academic medical center and

the other a university-affiliated teaching hospital. Data used to develop the instrument was collected via videotaping of rounds. Although 108 patient presentations were taped, 10 were used for Delphi rounds, and the remaining 98 were used to test internal consistency. A 19-item quality indicator tool was developed using literature and Delphi rounds. The items were then scored by answering yes, no, inconsistent, or not applicable. Researchers determined interrater reliability using an online Cohen  $k$  calculator, and interclass correlation was measured using Pearson correlation coefficients. The Cronbach's  $\alpha$  measured internal consistency. Application of the instrument was assessed by measuring the quality indicators (observable behaviors) during interprofessional rounds in the ICUs. The results of this study found that there was adequate interrater reliability ( $K= 0.85$ ), fair reproducibility between classes of healthcare professionals, and acceptable internal consistency ( $\alpha=0.78$ ) (Ten Have et al., 2013). The strength of this study is the use of acceptable statistical methods. One limitation is the inability to connect the chosen quality indicators to patient outcomes.

A rural hospital system in the United States developed a rounding tool and rounding guidelines to meet their goals of reducing length of stay and improving outcomes. The team used an interdisciplinary plan of care (IPOC) to develop goals for each patient, and developed a structure for collaborative rounding. Quantitative and qualitative data determined the success of their quality improvement project (Menefee, 2014). When the researcher compared the percentage of daily care plan reviews six months prior to project implementation, she found that only 22% were reviewed. At 12 months post intervention, 98% of the care plans had been

reviewed. Readmission rates decreased by 6% over the same time period. The researcher also collected data on a patient satisfaction question and found that there was a 7.5% increase in the number of patients who felt they were included in the care and treatment decisions. Staff interviews done for qualitative data collection found that staff perceived care as being streamlined, and nurses had perceived that they saved time because they didn't have to search for different members of the interprofessional team (Menefee, 2014).

Another study on a goal-directed approach to rounding evaluated the use of a daily goals checklist for morning ICU rounds. In the mixed-methods study by Centofanti et al. (2014), nurses completed the goal-directed worksheet prior to rounds, and the resident completed a similar worksheet during rounds. Five of the worksheet categories were the same for nurses and residents, and four categories collected different data. Researchers performed qualitative field observations, focus groups interviews, and document analysis. Field observations showed that the tool was completed 93% of the time and document analysis showed 72 completed forms. Healthcare team members found that with the goals-directed checklist, care was approached systematically, enabled interprofessional input, focused on goals, led to comprehensive care, and was a centralized repository for the patient plan and other patient data. Clinicians did not appreciate that information on the tool sometimes duplicated the other portion of rounds. This study shows that nurses were not expected to talk in rounds even if they had information to share (Centofanti, 2013).

### **Staff Perceptions of Rounds**

Sharma and Klocke (2014) assessed attitudes of nursing staff toward collaboration in the interprofessional rounding process. This pilot study used a pre- and post-survey of 90 nurses with a response rate of 69 surveys. After interprofessional rounding at the bedside was implemented, nurses rated interaction and communication, positive effect on workflow, job satisfaction, value as a healthcare team member, and the inpatient rounding process itself. A higher percentage of nurses were completely satisfied with the inpatient rounding process ( $p < 0.0001$ ), value as a team members ( $p = 0.0018$ ), communication ( $p < 0.0001$ ), and positive effect on workflow ( $p < 0.0001$ ) post-implementation. As with other studies on interprofessional rounds, limitations included the study size and the use of a non-validated survey tool. The authors discussed barriers to professionalism in nursing including the hierarchical structure of healthcare. While interprofessional rounding has previously been recommended to improve patient safety, this study showed that measures such as efficiency and nursing satisfaction were enhanced as well.

Gonzalo, Kuperman, Lehman, and Haidet (2014) performed a cross-sectional evaluation of nurses and physicians to determine the barriers and benefits of interprofessional rounds in the 378-bed university hospital in the United States. There were 149 responses to the survey. Communication, coordination, and teamwork were some of the most frequently listed benefits, while time, patient discomfort, and staff discomfort with the process were barriers. Nurses found interprofessional rounds more beneficial than physicians. The survey strength was



an adequate sample size ( $n=149$ ) and a weakness was the utilization of a survey that was not validated.

### **Nursing Topics Discussed During Rounds**

The Society of Critical Care Medicine & Sutter Health (2015) highlight the importance of members of the interprofessional team providing recommendations based on the scope of their practice, and further notes that interprofessional rounding should be an equally shared responsibility. The nursing scope of practice covers a wide variety of dependent, independent, and interdependent practices, some of which overlap with the scope of other healthcare professionals (California Board of Registered Nursing, 2015). The National Database for Nursing Quality Indicators (2016) provides some guidance in determining priority topics for nursing, which may be valuable in determining nursing-focused topics to discuss during rounds. Outcomes measures such as rate of nosocomial infections and pressure injuries are considered nursing-quality sensitive indicators, and have become a high priority focus of nursing care (Medicaid.gov, n. d.).

### **Gaps in the Literature**

Interprofessional rounds are generally not well studied, and the role of the nurse in the interprofessional rounding process is not thoroughly discussed. Literature tends to focus on the family presence during the rounding process or the use of tools to increase communication or goal setting. Current literature that does highlight the nurse role in interprofessional rounds offers nurse perspectives without evaluating performance in rounds. There is one study where researchers attempt to quantify the nurse role in patient care conferences by evaluating the

relative amount of time that nurses talked during the rounding process (Alexanian et al., 2015). While this information is important, it does not attempt to analyze the type of input given by nurses. The validated tool that was designed to assess the quality of interprofessional rounds does question whether there was nurse input during the rounding process. Yet the four nursing-related elements of the instrument are combined with several other factors to measure the rounding process overall. In order to meet IOM goal of nurses being equal healthcare team members, it is important to independently examine information that nurses share in rounds and if they provide recommendations for patient care. For instance, a rote recitation of the patient history could likely be given by any team members, whereas the sharing of specific nursing information that results in a new order or a change in the plan of care could be considered a higher level of nursing input.

The exact content to be covered by nurses during rounding is not defined within the literature. The gap was previously noted by the facility of study and they had already identified specific topics that they considered nursing-focused (Keck Hospital of USC Performance Improvement Department, 2015).

## **Methods**

### **Project Design**

An exploratory, descriptive design was used to address the research questions. Two data collection methods were used to evaluate the rounding process in ICUs in the facility of study. The researcher used an observational component as well as a questionnaire to further understand nursing participation during interprofessional rounds.

The observational portion of this project was designed to assess whether the nurse provided verbal input during rounds. A data collection instrument was used (See Appendix A) to record time of nurse participation compared to length of each round, the number and type of nurse specific topics discussed by nursing (based on topics listed in the hospital's rounding tool), and the number and type of other topics discussed by nursing.

After observational data was collected, each nurse who met the inclusion criteria was given a questionnaire for demographic data along with yes/no question regarding the nurse's perception of the rounding process (See Appendix B).

### **Setting, Population and Sampling**

The facility of study is a 411-bed academic medical center located in a large urban area. A convenience sample of nurses working within any of the seven ICUs within the facility were observed and surveyed, and inclusion criteria was as follows:

- Registered nurses that provided direct care for a patient in the ICU

- Employed by the hospital
- The nurse studied must have been assigned a patient that was included in interprofessional rounding

Nurses working as contract staff were excluded from the study. Any nurse who had already been observed during rounds and who had completed the questionnaire previously was excluded from participating a second time, regardless of the likelihood that the nurse was discussing a different patient.

### **Investigative Techniques and Instrumentation**

Due to the lack of a standardized instrument that measures nursing specific input during rounding, the researcher developed an instrument to record observational data. Information collected via the tool included the time that a nurse participated in rounds and the content discussed. The tool focused on nursing specific topics, which were identified based on known NSQIs and other care previously identified as nursing-focused by the organization. As such, there may be have been a bias in determining what topics were considered nursing-focused. Validity and reliability could not be assured when evaluating the type of input in rounds, however having data on episodes of nursing input may still provide insight regarding interprofessional collaboration. Likewise, a validated tool was not used to assess whether demographic data affected nursing input during rounds.

### **Data Collection**

The study took place over a three-month period. Each of the seven ICUs was observed on their scheduled interprofessional rounding day. The researcher coded each observational rounding instrument and questionnaire so that identifying

information from the nurse was not collected. Observational data was only collected during the length of the round. After the round, the nurse that met inclusion criteria was given a questionnaire by the researcher and was given the option to participate in the study. The nurse respondent had unlimited time to complete the questionnaire. Once the observation and questionnaire were complete, no further interaction with participants was necessary. The completed questionnaire was left in an envelope on the unit that was then collected by the researcher at a later time.

### **Statistical Measures**

Descriptive statistics were used to analyze the frequency of input during rounds. Demographic data were analyzed using descriptive statistics and parametric and non-parametric tests for factors related to nursing input. A power of 0.80 was not achieved. However, the project served as a preliminary exploratory study, and data collected was observed for trends to determine if this project should be followed by a more rigorous study of factors that impact interprofessional rounds in the ICU.

### **Ethical Considerations**

Recruiting employees as research subjects required special consideration to ensure no direct or indirect supervisory relationship between the researcher and the subjects. When nurses were given the questionnaire, they received written information that described measures to maintain confidentiality (See Appendix C). The written information also ensured employees that their information will be kept confidential and that no identifying information will be shared with the employer.

Completion of the questionnaire constituted implied consent, and therefore written consent was not obtained. All data was coded and de-identified and only aggregate data were used. The University of Southern California Investigational Review Board (IRB) (See Appendix D) and the California State University, Fresno IRB approved this project. The researcher participated in NIH training.

**Bias**

Nursing input was observed independently without collecting data on the input and interactions of the rest of the interprofessional team. The actions of the team may have played a significant role in whether the nurse is able to present nursing-focused patient care details during rounds. Additionally, as noted above, nursing-specific topics assessed during rounds were previously identified by the facility being studied and identification as such is not validated within the literature.

**Summary**

The preliminary exploratory study on interprofessional rounding was used to evaluate nursing input during interprofessional rounds in an academic medical center in Southern California. An observational study combined with a questionnaire was assessed using descriptive statistics and statistical measures. Although employees can be a vulnerable population, the researcher took measures to inform employees that participation was optional and that their individual information will not be shared.

## Results

This project was an evaluation of nursing input during the rounding process, and specifically examined the frequency that nurses provide input, discuss nursing quality issues, and make recommendations during rounds. This information was gathered from observations of interprofessional rounds and from a questionnaire to determine if nurses found the current rounding process effective, and to analyze whether certain nursing characteristics were associated with higher levels of nursing input. A total of 95 rounds were observed, and of those, 24 were excluded from the study because the nurse was a contract employee or because the observed staff member had previously completed the questionnaire. Eight nurses that met inclusion criteria did not complete the questionnaire. The 63 remaining observations and questionnaires were analyzed.

### Demographic Data

Demographic data collected to identify whether nursing characteristics affected input during rounds included age and years as an ICU nurse (Table 1), gender, ethnicity, country of birth, education level, and whether the participant holds a professional nursing certification (Table 2).

Table 1: *Mean Age and Mean Years as an ICU Nurse*

Nurse Characteristics	Mean	SD
Age	39.0	9.32
Years as an ICU Nurse	10.8	8.28

Table 2: *Nurse Characteristics expressed in frequencies and percents*

Demographic Data	Frequency	%
Gender		
Male	16	25.4
Female	47	74.6
Ethnicity		
Asian	18	28.6
Pacific Islander	9	14.3
Black	1	1.6
White	22	34.9
Hispanic	12	19.0
Missing	1	1.6
Born in the United States		
Yes	33	52.4
No	30	47.6
Education Level		
Associate Degree	14	22.2
Bachelor's Degree	44	69.8
Master's Degree	5	7.9
Participants from each ICU		
A	11	17.5
B	10	15.9
C	11	17.5
D	8	12.7
E	7	11.1
F	4	6.3
G		

### Frequency of Nursing Input During Rounds

This observational study measured nursing input provided on any of ten pre-identified nursing-focused categories that included nursing-focused care and quality indicators, as well as any input that did not fall into those categories. The ten pre-identified measures included presence of a urinary catheter, pain concerns,



presence of a central line, nutritional issues, respiratory concerns, mobility, skin condition, psychosocial, emotional, and cultural concerns, core measures, and daily goals. Data were examined for independent input as well as input that occurred after prompting by physicians, charges nurses, or other interprofessional team members. Overall, nurses provided input on the ten nursing-focused categories 1.73 times per individual round, and 2.56 times on the nursing-focused categories *and* any other topic. Two of the ICUs received three weeks of rounds coaching two months prior to the observational study (Units A and B), and were analyzed separately from all other ICUs (C through G) that had received only minimal rounding instruction three months prior to the study. There was no relationship between frequency of input and any of the nursing characteristics (demographic information) evaluated.

Nurse input across ethnic groups was analyzed with Kruskal-Wallis testing, repeated for both the 10- and 11-item input scales. Ethnic groups displayed similar positively-skewed distributions across most groups. One important exception was the black ethnic group, which had only a single participant. While this grouping was included in the analysis, the lack of distribution does not meet an important assumption of the K-W test. The results of these analyses supported the null hypothesis; no significant differences between any of the groups (see Table 3).

*Table 3: Kruskal-Wallis H Test for Median Differences between ethnicity/input scores*

Independent Variable	Dependent Variable	<i>N</i>	<i>df</i>	<i>H</i>	<i>P</i>
Ethnicity	10-item scale	62	3	4.39	.223
	11-item scale	62	3	3.98	.264

\*  $p < .05$ , \*\*  $p < .01$

Demographic differences in input scores were analyzed with a Mann-Whitney U test for variables that were dichotomous. Results can be seen in Table 4. In addition, one attitudinal variable (endorsed rounding) is included in the table, indicating if the individual participant believed rounding to be an effective work procedure, which was answered as a yes/no question. No significant differences between groups were observed.

Table 4: *Mann-Whitney U Tests of Differences in Nurse Input*

	Mean Ranks	<i>N</i>	<i>U</i>	<i>Z</i>	<i>P</i>
<b>10-item Input</b>					
Gender	Female =30.84 Male = 35.41	47 16	321.50	-.949	.343
Endorse Rounding	Yes = 26.74 No = 28.44	45 8	168.50	-.314	.753
Born in USA	Yes = 33.92 No = 29.88	33 30	431.50	-.964	.335
Certification	Yes = 29.80 No = 33.26	23 40	409.50	-.795	.427
<b>11-item Input</b>					
Gender	Female =29.95 Male = 38.03	47 16	279.50	-1.583	.114
Endorse Rounding	Yes = 27.29 No = 25.38	45 8	167.00	-.336	.737
Born in USA	Yes = 33.47 No = 30.38	33 30	446.50	-.693	.488
Certification	Yes = 29.35 No = 33.53	23 40	399.00	-.904	.366

Differences in input were analyzed across ICUs, using the Kruskal-Wallis H test. This nonparametric procedure was deemed appropriate due to the non-normal distribution of the input variables. In addition the distribution of scores was similar within each ICU, displaying positive skew and similar variability across ICU groups. In practical terms the positive skew indicates that lower levels of input were most common, with fewer nurses giving increasing quantities of input. The similarity in variability is likely to result in part from the limits of the scale (10 or 11 maximum opportunities), in addition to similar response patterns. Results of Kruskal-Wallis H tests can be seen in Table 5. Results indicated that the null hypothesis was rejected in each version of the test, meaning that input differs significantly between groups. Visual inspection of the input scores indicated that ICUs A and B (or the combination of both) appeared to be higher than other ICUs. However, inspection of pairwise tests (Mann-Whitney *U* tests) indicated that only some of these differences were significant. Standardized test statistics and *p*-values (Bonferroni-adjusted for multiple comparisons) are presented here where significant, while some pairwise comparisons were significant before correction and may be significant in larger samples. For the 10-item input scale when ICUs A and B were separate, ICU A differed significantly from ICUs C ( $Z = 3.91, p = .002$ ), D ( $Z = 3.26, p = .024$ ), and E ( $Z = 3.70, p = .005$ ). With ICUs A and B combined, this group significantly differed from ICUs C ( $Z = 3.64, p = .004$ ) and E ( $Z = 3.40, p = .010$ ). Differences for the 11-item input scale were significant for the A-C comparison ( $Z = 3.25, p = .024$ ) when ICUs A and B were separate. When ICUs A and B were combined, this group significantly differed from both ICUs C ( $Z = 3.28, p = .016$ ) and E ( $Z = 2.97, p = .044$ ).

Table 5: *Kruskal-Wallis H Test for Median Differences between ICU input scores*

Independent Variable	Dependent Variable	<i>N</i>	<i>df</i>	<i>H</i>	<i>P</i>
ICU	10-item input scale	63	6	23.62	.001**
ICU (A and B combined)	10-item input scale	63	5	21.45	.001**
ICU	11-item input scale	63	6	19.59	.003**
ICU (A and B combined)	11-item input scale	63	5	19.02	.002**

\*  $p < .05$ , \*\*  $p < .01$

### Nursing Recommendations During Rounds

Data were collected on whether nurses provided recommendations to physicians or to other members of the interprofessional team, and whether those recommendations were acted upon, and group differences were then analyzed. The number of times nurses made recommendations leading to immediate orders or a change in the plan of care was 13 (25.4%), while recommendations did not lead to orders in the remaining 47 (74.6%). The mean age of those making recommendations leading to orders was 37.73 ( $SD = 2.42$ ) years, with the mean years of ICU nursing experience being 9.5 ( $SD = 1.81$ ) years. By comparison, those making recommendations not leading to orders had mean age 39.43 ( $SD = 1.38$ ) and mean 11.23 ( $SD = 1.31$ ) years of ICU nursing experience. A Chi-square test of independence was calculated comparing the frequency of recommendations leading to orders in men and women. Although not quite significant ( $p = .051$ , value = ,3.81,  $df = 1$ ) men were more likely to make recommendations leading to orders. This marginally significant result is not enough evidence of a gender difference to conclude the effect is likely to be real, but does indicate further research is needed in larger samples. Other Chi Square Tests comparing recommendations leading to

orders to education level, whether the participant was born in the United States, and ethnicity showed no significant relationships.

Recommendations leading to orders (RLO) were investigated for relationships with other variables in the study, and these analyses were repeated for the entire dataset as well as subsets of those receiving training (ICUs A and B) and those not receiving training (ICUs C-G). Numerical-scale variables were analyzed for a relationship with RLO with point-biserial correlation, Spearman's rho correlations, and Mann-Whitney U tests, as variables ranged in their normality. Categorical variables were analyzed for relationships with RLO using cross-tabulations with chi-square statistics. See Appendix D for complete results tables.

Mann-Whitney U tests of group median differences were analyzed for differences in input and education between those reporting recommendations leading to orders and those reporting recommendations not leading to orders. The Mann-Whitney tests results were selected for reporting these relationships as these variables all demonstrative positive skew and excessive kurtosis, but with similar distribution shapes across the two groups. Results contained only one significant difference in the analysis of all ICUs together: higher levels of input on the 11-item scale for those with recommendations leading to orders (See Table 6;  $U = 205$ ,  $Z = -2.804$ ,  $p = .005$ ). This finding indicates that those giving recommendations that led to orders were also giving a higher quantity of input. No other comparisons in the other ICU subgroups or variables were significant.

Table 6: Mann-Whitney U Tests of Differences for Recs Lead to Orders Yes/No

	Mean Ranks	<i>N</i>	<i>U</i>	<i>Z</i>	<i>p</i>
All ICUs					
10-Item Input	No = 29.68	47	267.00	-1.898	.058
	Yes = 38.81	16			
11-Item Input	No = 28.36	47	205.00	-2.804	.005**
	Yes = 42.69	16			
Education	No = 31.28	47	342.00	-.667	.505
	Yes = 34.13	16			
ICUs A and B					
10-Item Input	No = 10.92	13	51.00	-.880	.379
	Yes = 13.40	10			
11-Item Input	No = 10.73	13	48.50	-1.034	.301
	Yes = 13.65	10			
Education	No = 10.46	13	45.00	-1.611	.232
	Yes = 14.00	10			
ICUs C - G					
10-Item Input	No = 20.93	34	87.50	-.703	.482
	Yes = 18.08	6			
11-Item Input	No = 19.63	34	72.50	-1.217	.224
	Yes = 25.42	6			
Education	No = 21.38	34	72.00	-1.386	.271
	Yes = 15.5	6			

\*\*significant at .01 alpha level

In ICUs that received coaching (A and B) on rounding, a Pearson Correlation test of independence was calculated. Age was negatively related to recommendations leading to orders ( $r = -.455, p = .038$ ). This was supported using the Spearman's rho correlation test ( $\rho = -.425, p = .049$ ), meaning that within these ICUs, younger nurses were more likely to make recommendations leading to orders. There was no significant difference or relationships in the other categories examined.

### Other Rounding Details

The average length of one patient round was 5 minutes and 40 seconds with rounds ranging anywhere from 22 seconds to 19 minutes and 33 seconds. Device utilization and nursing content was not consistently discussed, and daily goals, a main purpose of rounding, were one of the least frequently discussed topics. Topics identified by the organization as nursing-focused were addressed infrequently (see table 7).

Table 7: *Mean number of times nurses discussed topics during each round*

Topic	Mean	Standard Deviation
Core Measures	.032	.1767
Daily Goals	.063	.2458
Pysch/Emo/Cult	.063	.2458
Skin Issues	.143	.3527
Mobility	.143	.3527
Respiratory	.159	.3684
Nutrition	.159	.3684
Central Line	.159	.3684
Pain	.175	.3827
Urinary Catheter	.190	.3948
Other	.444	.5009

Correlations between nurse input and other variables were examined with Spearman's rho nonparametric correlation analysis. Only the proportion of time the nurse was present was significantly related to input for both the 11-item ( $\rho = -.275$ ,  $p < .05$ ) and 12-item ( $\rho = -.276$ ,  $p < .05$ ) scales. The negative correlations indicate that nurses present for more time were giving less input, and those present for less time gave more input.

### **Discussion and Assessment of Results**

This observational, exploratory, descriptive study with questionnaire demonstrated that although nurses do provide input during interprofessional rounding, there are significant opportunities to improve current practices within the hospital of focus. Nursing provides the majority of direct patient care (Hassmiller, 2016), and as such, is likely able to provide the most current and relevant information about each patient. There are further opportunities to improve nursing input specifically as it relates to their scope of practice. For instance, the National Database of Nursing Quality Indicators (NDNQI) is a robust database that has identified outcomes such as pressure injuries as a nursing-specific topic (Press-Ganey, 2016). Further, the lack of adequate nutrition is directly related to pressure injuries (Domer, Posthauer, & Thomas, 2009). Both topics are associated with nursing diagnoses, which supports their inclusion as nursing-focused topics (NANDA Nursing Diagnosis List, 2016). Nurses should take ownership of topics such as nutrition and skin during rounds to meet the Society of Critical Care Medicine and Sutter Health (2015) vision of healthcare professionals providing input and recommendations based on their scope of practice. When nursing and any other member of the medical team share joint responsibility for a topic, either or both professionals will bring value when they contribute to rounding discussions. This is especially evident when discussing the use of devices such as urinary catheters and central lines. Use of devices directly related to NSQIs are important rounding topics for various medical professionals, but the nurse may be



the only team member that has the knowledge regarding whether the device is truly needed.

As nursing processes that affect patient outcomes are better researched in the future, healthcare professionals must focus on communicating those processes during rounds. Medical residents, fellows, and attending physicians use written or electronic tools to ensure they always review specific topics during rounding. Nurses in the facility of study have a tool available that prompts them to emphasize nursing-focused topics during rounds, yet those topics are not routinely addressed. Nursing input on all aspects of patient care is appropriate based on the holistic care provided, but it is especially important to address NSQIs and their specific processes that are considered nursing priorities within this organization. The benefits of interprofessional rounding may not be realized if nurses do not speak to processes that affect outcomes. Additionally, opportunities may be lost when goal setting during interprofessional rounds occurs infrequently. There is a need to further explore input during rounds to evaluate whether there is a correlation between improved outcomes and input during rounds.

Another concern is infrequent recommendations provided by nurses. Expecting that nursing recommendations be provided during each ICU round will improve interprofessional teamwork and collaboration, leading to improved patient care. Although no significance was found when frequency of recommendations was compared to demographic data, it is important to note that some patterns may have been unidentified due to the small study sample size. Although not statistically significant, the study identified that men provide more recommendations and that

those recommendations lead to orders or changes in the plan of care. A more robust exploration of traditional medical team roles and hierarchical relationships could prove beneficial.

### **Limitations**

This study was small, with 63 participants. There was no significance shown when nursing characteristics were compared with frequency of input during rounds. A larger sample size may have shown significant group differences. Only one hospital was studied and the results may not be generalizable to all hospitals. Assessments of nursing input during rounds in multiple hospitals will assist in further exploring the phenomenon of interest.

There was a lack of validated and reliable tools or methods to evaluate nursing input during rounds. The evaluation tool developed for this observational study identified nursing-specific topics of focus, based on literature and previously identified nursing and organizational priorities at the hospital of study. Not all hospitals may consider the nursing topics chosen to be the highest priority for their facilities. Even within the facility of study, some topics of focus may not have applied to every patient. Although nurses were expected to identify pertinent negatives rather than skipping an identified nursing –focused topic, it is not clear whether such a strategy leads to better patient care.

Rounds are an opportunity to measure formal interprofessional interactions, however, there are frequent spontaneous, informal interactions that occur between professionals. These informal interactions may provide further insight into nursing

input provided to interprofessional team members, however only formal rounding was assessed.

### **Recommendations**

Measuring a mean number of occurrences of nursing input provides initial data that can be used to further study the nursing role in interprofessional teamwork, and collaboration. This information should be used to develop future education and workflows for nurses and teams, and to analyze whether nurses improve in their ability to work as equal interprofessional team members.

It is vital to address the nurses' role in rounds. The limited scope of other non-physician interprofessional team members makes their opportunities for contribution clear, but the wide scope of nursing practice adds complexity. With no clear ownership of any one subject during rounds, nurses may be uncertain of how they can best contribute, leading to decreased input. This study examined all nursing input during rounds but also examined input on nursing-focused care as determined based on organizational priorities and nursing-sensitive quality indicators. There is benefit in using nurses to drive such organizational priorities by ensuring they speak to pre-identified topics during rounds, but such an approach will require each facility to determine their own organizational priorities to be discussed during rounds. The priorities will likely change or evolve over time, leaving nurses in the position of frequently changing their contribution during rounds. The use of contract staff adds extra stress, as they will not be aware of the priorities in each facility. Current rounding tools and worksheets do not necessarily identify which team members should begin discussions on certain topics. A

rounding worksheet with clearly identified nursing topics may resolve some barriers, with the hope that as rounding becomes a more natural, interprofessional activity, the need to identify one service as the owner of a topic would be replaced by more robust group discussions including all members.

There are opportunities to examine other interprofessional team members during rounds. As previous rounding structures relied heavily on the physician, it would be beneficial to closely examine the physician role during interprofessional rounds. Nursing input is not independent of the receptiveness of the physician and other professionals. The level of physician engagement during interprofessional rounding may vary widely, and examining group dynamics, off-line discussions during rounds, special positioning, eye contact, interruptions, and sensory issues may be useful when assessing frequency of nurse input. Further value may be gained by understanding physicians' perceptions of the value of interprofessional rounds, and their willingness to change from a physician-centric model of rounding. Within academic medical centers, it may be beneficial to study the physician perception of goals of rounding; do physicians find that the primary purpose of rounding is as a forum for resident education or do they accept the proposed model that promotes the primary purpose of rounding as an opportunity for enhanced interprofessional communication?

Patients and the healthcare community may benefit from large studies designed to understand the impact of hierarchies in the medical field, especially as the concept relates to patient outcomes and failure to rescue events in the hospital setting.

**Implications for Nursing Practice**

In the facility of study, frequent nursing input during rounds does not occur consistently. Providing a clear structure for interprofessional rounds, offering education on interprofessional teamwork and the nurses' roles and responsibilities in an interprofessional team, and dedicating time to coaching nurses on interprofessional teamwork may be beneficial in improving nursing input during rounds. Ensuring that nurses understand their unique contribution to the healthcare team may also improve nursing input during interprofessional rounds. Further coaching is needed so that nurses are able to offer their valuable input during interprofessional rounds.

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Appendix A: *Interprofessional Rounds Data Collection Worksheet*

## Interprofessional Rounds Data Collection Worksheet

Survey # (letter/number combination) \_\_\_\_\_

Was nurse present for rounds: Circle one Yes No Present for a portion of the round

Urinary Catheter	Central Line(s)	Skin Issues	Mobility	Nutrition	Pain	Psycho/Social/Emotional/Cultural	Core measures	Respiratory (including sedation, vacation and weaning)	Patient Goals

Did the nurse discuss other information during interprofessional rounds? If yes, please list.

Did any nursing input lead to new orders or change in the plan of care? If yes, please list.

Notes:

Answer key: Addressed by nursing = **Y** Not addressed at all = **N**  
 Addressed by other team member = team member **dept** recorded in the box

Appendix B: *Demographic Data Collection Form*

Interprofessional Rounding Questionnaire
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I

**Q. Do you feel the current interprofessional rounding process is effective - Yes or No? Please explain.**

**Q. Gender**

*What is your gender?*

- + Male
- + Female
- + Choose not to identify

**Q. Age**

*In what year were you born? \_\_\_\_\_*

**Q. Education**

*What is the highest degree or level of school you have completed? If currently enrolled, mark the previous grade or highest degree received.*

- + Associate degree
- + Bachelor's degree
- + Master's degree
- + Doctorate degree

**Q. Years working as a nurse**

*How many years have you been working as a nurse? \_\_\_\_\_*

**Q. Unit of employment**

*In which ICU do you primarily work?*

- + 8 West      + 7 South      + 7 East      + 7 West
- + 5 South ICU      + 5 West      + 4 South      + Float pool

**Q. Professional certifications?**

*Do you hold professional certifications?*

- + CCRN
- + Other (please list) \_\_\_\_\_

**Q. Ethnicity**

*Please specify your ethnicity.*

- + Asian
- + Pacific Islander
- + Black or African American
- + Caucasian
- + Hispanic or Latino

**Q. Country of Birth**

*Were you born in the United States?*

- + Yes
- + No

*Appendix C: Information Sheet*

Dear Nurse,

I am a nurse at Keck Hospital of USC completing a DNP degree. I am conducting a study to evaluate the current interprofessional rounding process with a focus on the role of the clinical nurse. The title of the study is, "Nursing participation during interprofessional rounds in intensive care units". The objective of this study is to gather information and nursing input regarding our current interprofessional rounding process.

The questionnaire below is confidential. If you choose to participate, do not write your name on the questionnaire. Your responses will not be identified with you personally. Nothing you say on the questionnaire will in any way influence your present or future employment with your company.

The questionnaire will take a few minutes to complete. Some questions may make you feel uneasy and there is a small risk that your personal information may be seen by others. Your participation is voluntary and there is no penalty if you do not participate. Your other option is to not take part. You will not benefit from taking part in this survey.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me at (818) 523-7174 or at [kathrine.winnie@health.usc.edu](mailto:kathrine.winnie@health.usc.edu). Contact the USC Health Sciences Institutional Review Board (HSIRB) if you have questions about your rights as a research participant at 323-223-2340. An Institutional Review Board is a group of people who independently review research.

Sincerely,

**Kathrine Winnie**

Kathrine Winnie  
Clinical Nurse Specialist

Keck Medical Center of USC

Appendix D: *University of Southern California IRB Approval*

University of Southern California Health Sciences Campus  
Institutional Review Board  
LAC+USC Medical Center, General Hospital Suite 4700  
1200 North State Street, Los Angeles, CA 90033  
(323) 223-2340 phone  
(323) 224-8389 fax  
irb@usc.edu

Date: Aug 10, 2015, 10:28pm  
To: [Katherine Winnie](#)  
student investigator  
USC-Health Sciences (HSC)

From: Health Sciences Institutional Review Board  
General Hospital, Suite 4700  
1200 North State Street  
Los Angeles, CA 90033  
(323) 223-2340

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TITLE OF PROPOSAL:  
Nursing participation during interprofessional rounds in intensive care units ([Nursing participation during interprofessional rounds](#))

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Action Date: **8/10/2015**

Action Taken:

**Approve**

Committee: Institutional Review Board Chairman

Note: Your iStar application and attachments were reviewed by the expedited mechanism by Dr. Darcy Spicer on August 10, 2015.

The project was APPROVED.

Approval of your study will expire at the end of the day (midnight) on Aug 9, 2016.

The materials submitted and considered for review of this project included:

1. iStar Application, dated 07/23/15
2. Data Collection Form, dated
3. Questionnaire, dated
4. Information Sheet, dated 07/21/15

This study was submitted for expedited review according to 45 CFR 46.110(b) (5).

## Appendix E: Results tables for data analysis of recommendations leading to orders

Table 8

*Point-Biserial Correlations between Recs Lead to Orders, Age, and RN Experience*

	1	2	3
All ICUs			
1. Recs Lead to Orders	-		
2. Age	-.079	-	
3. Years as RN	-.080	.800**	-
ICUs A and B			
1. Recs Lead to Orders	-		
2. Age	-.445*	-	
3. Years as RN	-.130	.632**	-
ICUs C – G			
1. Recs Lead to Orders	-		
2. Age	.038	-	
3. Years as RN	-.027	.860**	-

\*Significant at .05 alpha level; \*\* significant at .01 alpha level

Table 9

*Spearman's Rho Correlations between Recs Lead to Orders, Age, and RN Experience*

	1	2	3
All ICUs			
1. Recs Lead to Orders	-		
2. Age	.013	-	
3. Years as RN	.024	.766**	-
ICUs A and B			
1. Recs Lead to Orders	-		
2. Age	-.425*	-	
3. Years as RN	-.180	.672**	-
ICUs C – G			
1. Recs Lead to Orders	-		
2. Age	.013	-	
3. Years as RN	.024	.766**	-

\*Significant at .05 alpha level; \*\* significant at .01 alpha level

Table 10

*Results of Chi-square Test for Recommendations Lead to Orders by Ethnicity*

Recs Lead to Orders	Ethnicity				
	Asian	P. Islander	Black	White	Hispanic
All ICUs					
No	14(13.6)	7(6.8)	1(.8)	16(16.7)	9(9.1)
Yes	4(4.4)	2(2.2)	0(.2)	6(5.3)	3(2.9)
ICUs A and B					
No	3(3.0)	3(3.0)	-	3(3.0)	4(4.1)
Yes	2(2.0)	2(2.0)	-	2(2.0)	3(2.9)
ICUs C – G					
No	11(11.0)	4(3.4)	1(.9)	13(14.5)	5(4.3)
Yes	2(2.0)	0(.6)	0(.2)	4(2.6)	0(.8)

Notes. All ICUs  $\chi^2 = .494$ ;  $p = .974$ .

ICUs A and B  $\chi^2 = .016$ ;  $p = .999$ .

ICUs C – G  $\chi^2 = 2.736$ ;  $p = .603$ .

Numbers in parentheses are expected values.

Table 11

*Results of Chi-square Test for Recommendations Lead to Orders by Ethnicity*

Recs Lead to Orders	Ethnicity			
	Asian / P. Islander	Black	White	Hispanic
All ICUs				
No	21(20.5)	1(.8)	16(16.7)	9(9.1)
Yes	6(6.5)	0(.2)	6(5.3)	3(2.9)
ICUs A and B				
No	6(5.9)	-	3(3.0)	4(4.1)
Yes	4(4.1)	-	2(2.0)	3(2.9)
ICUs C – G				
No	15(14.5)	1(.9)	13(14.5)	5(4.3)
Yes	2(2.6)	0(.2)	4(2.6)	0(.8)

Notes. All ICUs  $\chi^2 = .494$ ;  $p = .920$ .

ICUs A and B  $\chi^2 = .016$ ;  $p = .992$ .

ICUs C – G  $\chi^2 = 2.168$ ;  $p = .538$ .

Numbers in parentheses are expected values.



Table 12

*Results of Chi-square Test for Recommendations Lead to Orders by Gender*

Recs Lead to Orders	Gender	
	Male	Female
All ICUs		
No	9 (11.9)	38 (35.1)
Yes	7 (4.1)	9 (11.9)
ICUs A and B		
No	3(4.5)	10(8.5)
Yes	5(3.5)	5(6.5)
ICUs C – G		
No	6(6.8)	28(27.2)
Yes	2(1.2)	4(4.8)

Notes. All ICUs  $\chi^2 = 3.813$ ;  $p = .051$ .

ICUs A and B  $\chi^2 = 1.806$ ;  $p = .179$ .

ICUs C – G  $\chi^2 = .784$ ;  $p = .376$ .

Numbers in parentheses are expected values.

Table 13

*Results of Chi-square Test for Recommendations Lead to Orders by Born in US*

Recs Lead to Orders	Born in US	
	No	Yes
All ICUs		
No	22(22.4)	25(24.6)
Yes	8(7.6)	8(8.4)
ICUs A and B		
No	7(7.3)	6(5.7)
Yes	6(5.7)	4(4.3)
ICUs C – G		
No	15(14.5)	19(19.6)
Yes	2(2.6)	4(3.4)

Notes. All ICUs  $\chi^2 = .049$ ;  $p = .825$ .

ICUs A and B  $\chi^2 = .087$ ;  $p = .768$ .

ICUs C – G  $\chi^2 = .243$ ;  $p = .622$ .

Numbers in parentheses are expected values.